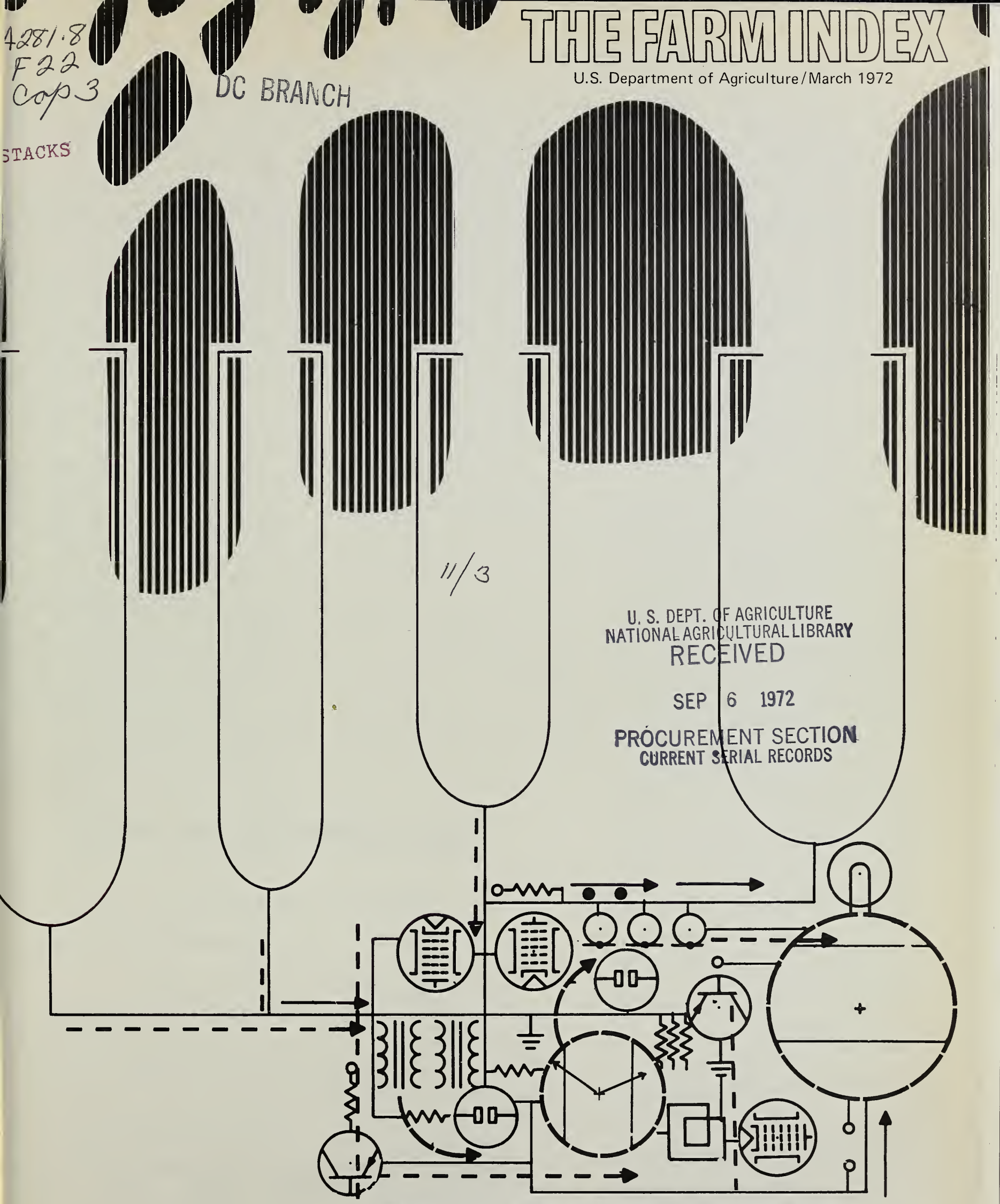
THE FARM INDEX

U.S. Department of Agriculture/March 1972



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Outlook

Last month's National Agricultural Outlook Conference in Washington, D.C. marked 50 years of outlook work, but that wasn't the only cause for jubilation.

For America's farmers, the 1972 prospectus proved to be the most optimistic in recent history. Some of the highlights—

- Higher gross farm income than 1971's $58½ billion, of itself a record.
- Slower increases in farm production expenses.
- And, depending on the outcome of '72 production plans plus general demand conditions, a 10-15 percent jump in net realized farm income from last year's $15.7 billion. This would mean the biggest net since the record year of 1947.

Moreover, the improved financial picture for agriculture will narrow the income gap between the farm and non-farm population.

Less cheerful was the look-ahead for consumers. Prices they'll pay at the grocery store may average about 4 percent above 1971, when retail prices advanced 2½ percent. Including all food—that bought for home use as well as meals and snacks eaten out—the rise in food prices could be as much as 4½ percent this year.

On the specifics, the conferees were told the economy's Gross National Product is expected to swell by $90-$100 billion from 1971's estimated $1,047 billion. Consumers' after-tax incomes are projected 8 percent higher, reflecting more production, greater employment, and rising wage rates.

Price gains combined with population growth will spur higher spending on food—on the order of 5-6 percent from the $118½ billion of '71. But with the prospective increase in after-tax incomes, the share of the consumer's dollar spent on food is likely to decline again, perhaps by half a point to 15½ percent.

Exports of U.S. farm products hit a record-breaking $7.7 billion in calendar 1971, and no big change is in prospect for this year. On a fiscal year basis, however, our agricultural exports in 1971/72 may fall 4 or 5 percent short of the record shipments of a year earlier. The dock strikes have restricted shipments. In addition, overall export levels in fiscal 1972 will be affected by higher prices for U.S. soybeans and limited availabilities of cotton.

On the supply side, the volume of farm marketings in 1972 is seen about the same as a year earlier. But the value of farm sales will move higher owing to the stronger food demand and substantial increases in prices of farm products.

Gross farm income is projected at least $3 to $3½ billion above 1971's $58½ billion, including Government payments.

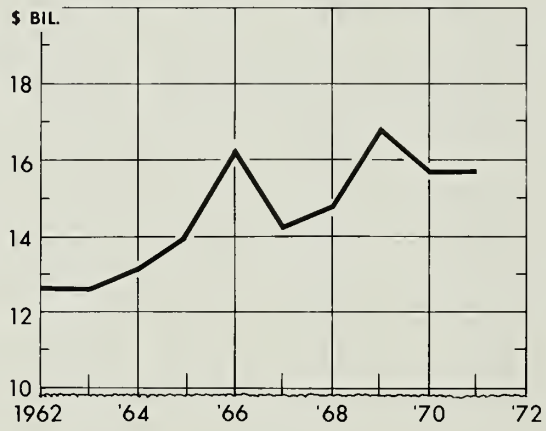
Livestock receipts may run nearly $2 billion above 1971 in response to higher prices. Beef, poultry, and milk production are likely to increase, but pork will be down. In general, producers will be encouraged to expand production because of abundant feed grain supplies and favorable price relations. But the impact probably won't be felt till late '72.

Crop prospects are hard to foretell this early in the season. Firmer estimates will be possible after the sign-ups for the 1972 feed grain and wheat programs, and the annual March report on planting intentions.

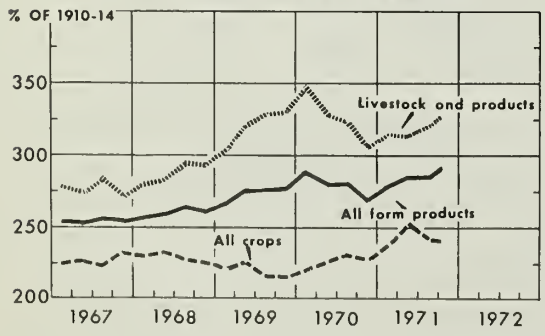
Assuming average growing conditions, and "reasonably effective" grain programs, the outlookers see little change in marketings from last year, though large carryovers will help assure large grain supplies. For soybeans and cotton, only modest output gains are indicated and the supply/demand balance will stay tight.

Prices for crops are expected to average around 1971 levels. All con-

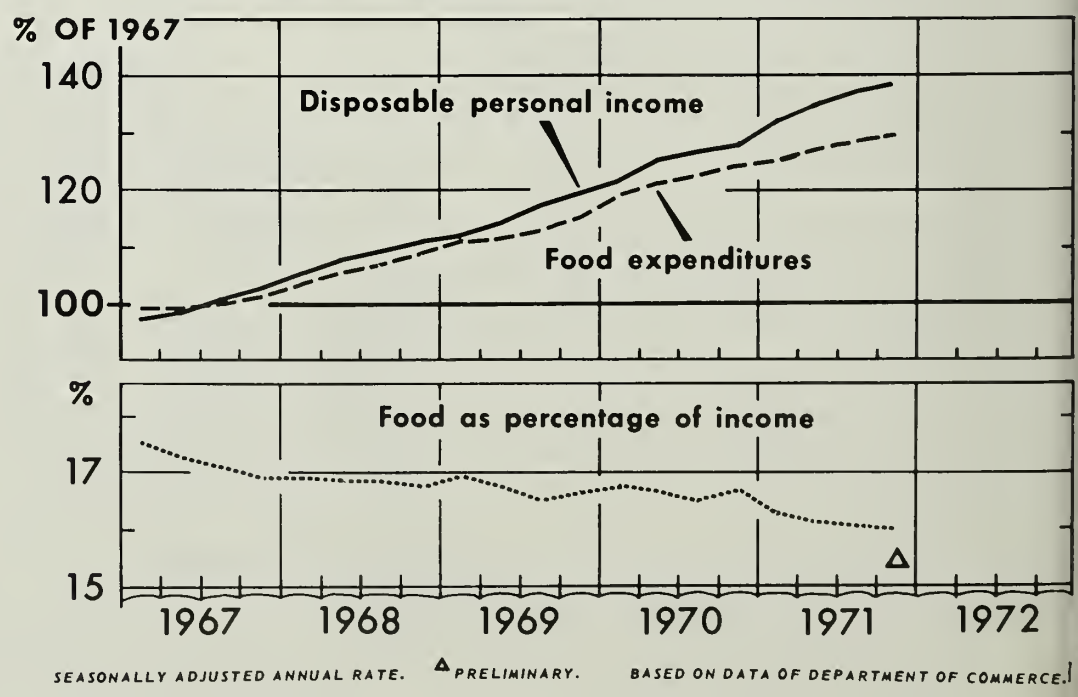
REALIZED NET FARM INCOME



PRICES RECEIVED BY FARMERS



FOOD EXPENDITURES AND INCOME



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sidered, crop receipts will likely hold near last year's $21.9 billion. Government payments, however, will be larger—perhaps by around $1¼ billion from 1971's $3.2 billion.

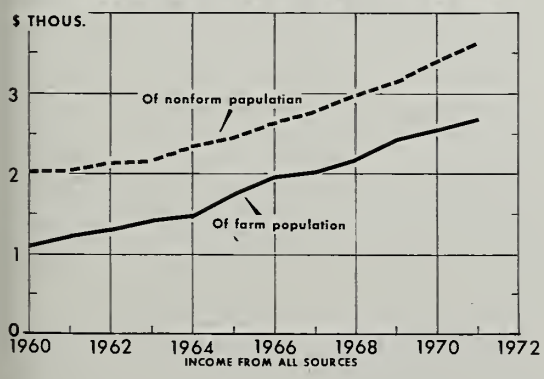
Farmers can also look forward to some tapering in the growth rate of farm production expenses. This year's increase is estimated at $1½ billion (including wages, interest, taxes, and depreciation), compared with gains in recent years of around $2 billion. Helping to keep the lid on expenses in '72 will be lower feed costs along with Phase II restraints on prices and wages.

Farming's gross product this year is expected to increase by $1½-$2 billion (including wages of farm workers, interest payments, taxes, rent and depreciation, as well as returns to the labor, capital, and management used in farming). In addition, Government payments to farmers will go up, with the amount to depend on the outcome of their production plans.

Thus, realized net income of farm operators will easily surpass the $15.7 billion of 1971, and will stand as one of the largest annual increments of recent years.

Adding their farm income to that from other sources, the farm population in 1972 would still have lower incomes per person than nonfarm people. However, the farm population's after-tax income would be 76 percent that of the nonfarm population, 2 points higher than in 1971. The after-tax income of farm people in '71 averaged about $2,690 per person, of which nearly ½ was nonfarm income.

DISPOSABLE PERSONAL INCOME PER CAPITA



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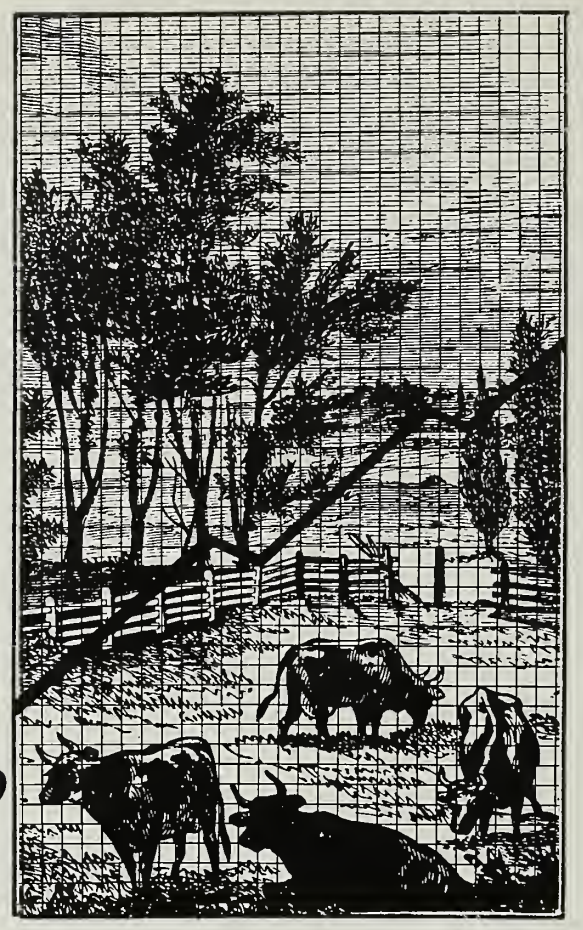
FARM BUSINESS GROWS, CENSUS SHOWS



Speculation about growth in farm size is being confirmed by the Census data. Here's a glimpse at what's happened in five regions spanning the breadth of the Nation.

If you're a manufacturer with fewer than 250 workers, that makes you a "small" businessman says the U.S. Department of Commerce.

What about the manufacturers of raw agricultural products?

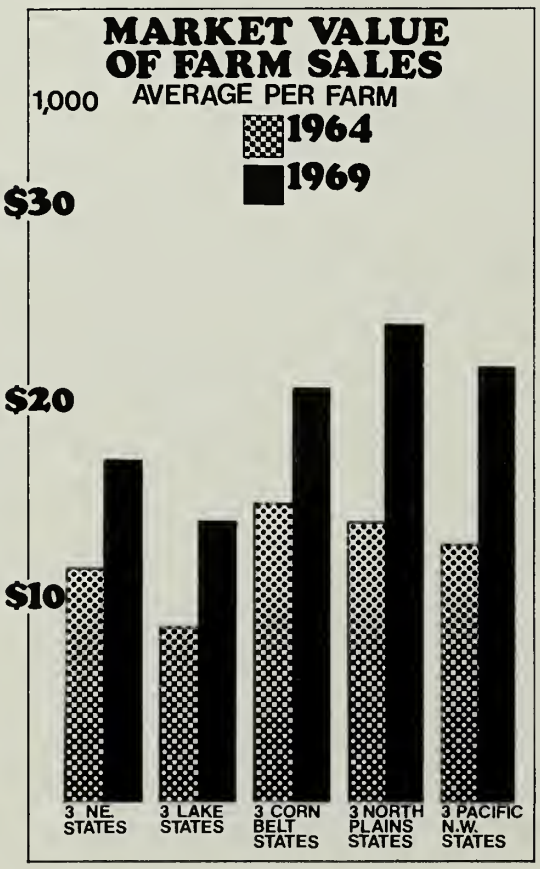
There's no pat answer. The size of a farm business can be expressed in numerous and various ways.

The old standard yardstick—and still useful—is the amount of land in a farm. An often more meaningful measure is the value of farm products sold. Among still other widely used criteria are the acreage or production of specified crops; the inventory or marketings of specified livestock; and the size of a farm's production expenses.

Whatever the measure, the story told by the Censuses of Agriculture is the same: The Nation's farm businesses are getting bigger.

One indication is the unwavering trend toward farm enlargement. It has figured strongly in every Census since 1935. The 1969 Census was no exception.

Take, for example, three States in each of five regions across the U.S. (N.Y., N.J., Pa., Minn., Wisc., Mich., Iowa, Ill., Ind., S. Dak., Nebr., Kans., Wash., Oreg., Idaho.)



Between the 1964 and 1969 Censuses, total farm numbers in these 15 States declined by 14 percent—from 1,236,000 to 1,069,000.

Why the drop? A closer look at the statistics reveals that many relatively small farms in 1964 were no longer being operated as separate units by 1969. Their land had been bought or rented by operators of nearby farms. This was the main reason why average acreage went up 10 percent to 328 acres on the remaining farms.

The drop in farm numbers also reflects abandonment of farming as a use of some land. This particularly applies to small operations in areas where soil is less productive—in parts of the Northeast, the Appalachian area, and to a lesser extent in the Lake States and the Northwest.

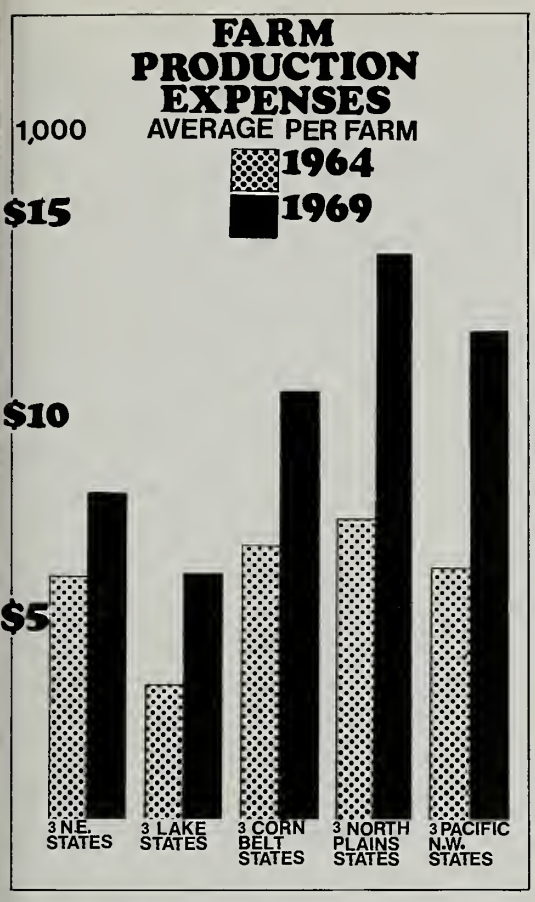
During 1964-69, farms with 219 acres or less declined both in absolute numbers and as a percentage of all farms in the five regions.

At the same time, the percentage of farms in the 220-499 acre class climbed in the Northeast, the Lake States, and the Northwest. The proportion in the 500-999 acre group went up in all five regions.

The Northeast, Lake States, and Corn Belt had only small increases in farms with 1,000 acres or more. By 1969, farms in this class still made up less than 1 percent of all farms in the three regions.

In the other two regions, where farming is generally more extensive because land is less productive, growth in the largest farms was more pronounced. In the Northern Plains the 1,000-acre-and-up class accounted for 16 percent of all farms in '69, up from 14 percent in '64; and in the Northwest, they accounted for 10 percent in '69 compared with 8 percent in '64.

The table on page 5 shows how the proportion of all farmland shifted from smaller to larger units in 1964-69. With two exceptions—the Northern Plains and the North-



* For livestock and feed; seeds, bulbs, plants and trees; commercial fertilizer; petroleum fuel and oil for farm business; hired farm labor; contract labor, machine hire, and customwork.

west—the biggest shift was to farms in the size classes of 220-999 acres.

As many small farms disappeared and more land went over to larger units, the average size of farms grew in all regions and the average sales per farm jumped sharply (see bar graph on facing page).

And, as the average size of farm sales expanded, so did the expenses of production (see bar graph this page).

Note that the scale on the graph depicting "farm sales" is twice as large as the scale on the "production expenses" graph ($30,000 vs. $15,000). This seems to suggest that expenses amounted to approximately half the total gross receipts of products sold.

But, as has been shown in other studies, the specific expenses reported by the Census may be only ½ to ¾ of all farm expenses. Not included are such major costs as machinery purchases and repairs, agricultural chemicals other than fertilizers, depreciation of machinery and farm buildings, taxes, the value of farm operators' labor and management, etc.

Some of the growth in farm sales stemmed from higher prices received in 1969 than in 1964. The net increase in prices was around 16 percent (36 percent higher for livestock and livestock products but 8 percent lower for crops).

Likewise, changes in price levels should be considered when interpreting the increase in farm expenses (prices paid for production inputs averaged 13 percent higher in 1969 than in 1964).

But there's no question that a big part of the surge in farm product sales and outlays is explained by other Census data showing output gains per unit, and how they were attained.

Briefly, higher value of product sales was made possible by (1) a larger land base per farm, (2) greater yields, (3) larger numbers of livestock handled, and (4) generally improved efficiency of operations on the farm unit.

In all five regions, for example, the Census shows large increases in feed production since 1964, mainly through higher yields per acre. Soybean acreage and yields also mounted higher, especially in the Corn Belt. Wheat yields were up in most areas, with sharpest gains in the Northern Plains.

While yields improved—due to greater use of improved varieties and commercial fertilizers and pesticides, to name a few—operators became more efficient. They did this with larger power units, better machines, and more extensive use of contract labor and custom work.

Some livestock farmers raised more cattle and hogs than in 1964, whereas others bought more livestock for feeding. They also supplemented their own feed production with bigger purchases of grains, protein supplements, and commercially mixed feeds. The number of hired workers on farms declined in all regions as more mechanization and better management enabled one man to handle larger acreages of crops and larger numbers of animals. (*1*)

RESULTS OF THE 1969 CENSUS OF AGRICULTURE indicate that the general pattern of land distribution among different sizes of farms in different regions across the U.S. was much the same in 1969 as in 1964. However, in four regions in 1969, farms with 10-219 acres accounted for a smaller proportion of total farmland than 5 years earlier. In three regions farms of 500-999 acres made up a bigger share. All regions showed increases in the percentage of all farmland in farms of 1,000 acres or more, but the changes were small.

Farm size (acres)	Census Year	Percent of all land in farms				
		Northeast States [1]	Lake States [2]	Corn Belt States [3]	Northern States [4]	Northwest States [5]
1-9	1969					
	1964	*	*	*	*	*
10-219	1969	44	36	28	5	8
	1964	47	41	32	5	9
220-499	1969	38	41	46	16	8
	1964	37	42	48	19	8
500-999	1969	13	15	21	21	9
	1964	12	12	16	21	9
1,000 and over	1969	5	7	6	59	75
All farms[6]	1964&69	100	100	100	100	100

[1] New York, New Jersey, Pennsylvania. [2] Minnesota, Wisconsin, Michigan. [3] Iowa, Illinois, Indiana. [4] South Dakota, Nebraska, Kansas. [5] Washington, Oregon, Idaho. [6] Totals may not equal 100 percent due to rounding. * Less than half of 1 percent.

When Is a Beef Cow Investment a Tax Shelter?

Federal income tax returns for 1969 showed there were some 7,600 individuals with farming activities who had adjusted gross incomes in excess of $100,000 from all sources. Three-fourths of these people reported losses from farming—a total of $117 million.

Another 13,200 individuals with farm income had adjusted gross incomes of $50,000-$100,000. Their farm losses came to $124 million.

In both income categories, the majority of losses originated from activities classed as livestock farms. And, a good share of the losses reported were from nonfarmer-investors; i.e., they got most of their incomes outside agriculture.

Under the law, these farm losses may be used to offset nonfarm income.

Numerous studies have been done on this subject, popularly known as "tax-loss farming." ERS's latest analysis of the problem projects the outcome of a 15-year investment in a commercial beef cow herd by a hypothetical nonfarmer-investor, and for the sake of comparison, the same investment by a hypothetical farmer-investor. Both men take full advantage of the provisions contained in our current tax code that apply to livestock ventures.

The results of this case study led the economists to the following conclusions:

(1) The cost to the Federal Treasury in reduced taxes far outweighs the monetary benefits to nonfarmer-investors; (2) The incentive for nonfarmer investments in beef cows would be virtually nonexistent without the tax law provisions of capital gains and of offsetting other income with farm losses; and (3) To make after-tax gains under the current tax law, the nonfarmer-investor in a beef cow venture must be above the 50-percent income tax bracket.

Here's how the study team arrived at their findings—

Our hypothetical nonfarmer-and farmer-investors make an initial purchase of 100 unbred commercial heifers and 5 commercial bulls. Thereafter, herd expansion comes about through keeping all heifer calves born during the first 5 years, three-fourths of the offspring during the next 5 years, and half of those born between the 11th and 15th years. All steer calves and the heifer calves not kept for expansion or replacement are sold at weaning at 425 pounds.

The farm is located in New Mexico. Management techniques are typical of the Southwest. Prices and costs, also representative of that region, are those prevailing in 1970—a relatively good year for the cattle industry. (Several other price-cost combinations were also used in this study.)

After 15 years, our investors decide to liquidate. By this time cow numbers have reached 348 head.

In reporting income, the investors use the declining balance method for depreciation (with the 20-percent additional first year depreciation) on all depreciable items except bulls, where straight line depreciation was used.

A major difference between the nonfarmer's and the farmer's investment is that the nonfarmer does not own any farm assets other than the livestock. The farmer-investor owns 5,000 acres worth $30 per acre and increasing in value by 3 percent a year. He owes $50,000 on the land, but pays only the interest during the 15 years. Both principal and interest are paid on loans made on livestock, facilities, and equipment.

Another key difference: The nonfarmer-investor does not directly participate in the day-to-day running of the operation. It's all done by a management company, which

INVESTMENT IN BEEF BREEDING HERDS: LOSSES TO THE TREASURY AND NET GAIN TO INVESTORS

	Current law	Current law except for provisions of:			
		Capital gain	Income averaging	Nonfarm tax saving	All Three
	Total over 15 years ($1,000)				
Results of nonfarmer's transactions:					
Loss to Federal Treasury:					
From using farm losses to offset nonfarm income					
50% bracket	94	77	94	0	0
70% bracket	141	114	141	0	0
From reduced farm taxes					
50% bracket	38	27	23	38	0
70% bracket	34	22	28	34	0
Total					
50% bracket	132	104	117	38	0
70% bracket	175	136	169	34	0
Net gain (or loss) to nonfarmer-investor[3]					
50% bracket	(5)	(34)	(21)	(100)	(138)
70% bracket	27	(12)	21	(114)	(148)
Results of farmer's transactions:					
Loss to Federal Treasury:					
From using farm losses to offset nonfarm income	0	0	0	0	0
From reduced farm taxes[2]	38	27	38	38	0
Total	38	27	38	38	0
Net gain to farmer-investor[3]	87	75	86	87	49

[1] For hypothetical 100-cow herd in N. Mex. Ignored are the gains and losses to other segments of society, including an expected increase in net income to ranch owners on whose land the managed cattle are kept, and to the management co. [2] Assumes that maximum income taxes (farm share) would have been paid if provisions of capital gain and income averaging had been excluded from the tax law. These figures represent the reduction in those maximum taxes under the current law; under the current law less capital gains provisions, etc. [3] Net benefit=cash received–cash disbursed and net worth change–income tax (farm) and nonfarm tax saving.

arranges for the investment, manages the herd, feeds, breeds, and sells the cattle. In return, the investor pays a yearly "maintenance" fee. In general, the costs of this service—as well as those of the inputs in the nonfarmer-investor's operation—are far steeper than those incurred by a bona fide rancher.

For this and other reasons, our nonfarmer-investor loses money on the deal. But all considered, he saves on taxes he'd have to pay on his nonfarm income.

It's assumed our hypothetical nonfarmer-investor has an annual nonfarm income of $210,000, which puts him in the 70-percent income tax bracket.

The nonfarmer's cash received from the cow operation totaled $469,000 over the 15 years, cash disbursed $557,000, leaving a before-tax net loss of $88,000. Federal income taxes paid on the beef enterprise by the nonfarmer-investor came to $26,000 during the 15 years. But because of farm losses in some of those years, the investor was able to offset some of his nonfarm income and save $141,000 in taxes on that income.

His total "net benefit" from the operation worked out to $27,000 (tax savings on nonfarm income of $141,000 less the loss from the beef enterprise of $88,000 less income taxes paid on the beef enterprise of $26,000).

The investor's net benefit was much lower than the total loss to the U.S. Treasury of $175,000 ($141,000 in investor's saving on nonfarm taxes plus $34,000 from reduced farm taxes).

The ERS study team also concluded the nonfarmer-investor would wind up with a large net loss on the cow enterprise if the current tax code did not contain the three provisions of capital gains, income averaging, and offsetting nonfarm income with farm losses.

Without any of the provisions, the nonfarmer-investor would be $148,000 in the red. Eliminating the provision to offset nonfarm income —and retaining the other two— would produce a loss of $114,000. Without capital gains treatment (i.e., all income taxed as ordinary income), the loss would be $12,000. Eliminating just the income averaging provision, the investor would come out ahead on the operation— by $21,000.

Thus, without the two provisions of capital gains and offsetting nonfarm income with farm losses— there probably would be little, if any, capital entering the beef breeding enterprise from nonfarmer-investors.

What if our investor's tax bracket were lower than the 70 percent assumed in this case? At 50 percent, the ERS study shows the investor's "net benefit" under the current provisions of the law would be $33,000 less—or a loss of $5,000. Had he been in the 32-percent bracket, his net loss would have been $47,000.

Getting back to our farmer-investor, he also had cash receipts of $469,000 in the 15 years. But his cash disbursed was only $448,000. He was left with a pre-tax income of $21,000. After paying $2,000 in income taxes and realizing a $68,000 increase in real estate value, the farmer ended up with a net benefit after 15 years of $87,000.

The farmer's net benefit was far greater than the total tax loss to the Federal Treasury. The farmer's net benefit penciled out to $87,000 (versus $27,000 for the nonfarmer-investor) and the Treasury's loss to $38,000 (versus $175,000 for the nonfarmer-investor).

These projections don't take into account certain recent changes in the Federal tax law; notably the 7-percent investment credit which now applies to beef breeding animals. The likely effect of these changes would be to increase the profitability of investments in beef breeding herds by reducing taxes paid by the investor. (*2*)

Special Tax Rules

The attractiveness of investments in beef breeding herds as a tax shelter is due primarily to three developments.

—A 1915 administrative decision permitting farmers to report income for tax purposes by either the accrual method of accounting or the cash receipts and disbursements methods.

—A 1919 Treasury regulation allowing farmers to write off capital expenditures incurred in the development of orchards and ranches.

—Legislative action in 1951 expanding the category of assets used in a trade or business (and entitled to capital gains treatment upon sale) to livestock held for draft, breeding, or dairy purposes.

The first two of these developments allow for the deduction of costs before the income is realized. The taxpayer may offset other income by these premature deductions, thus delaying the receipt of taxable income.

The third development permits the conversion of ordinary income into capital gains, which are subject to a lower rate of taxation. (*3*)

Corn Again Top Crop In Production Value

Corn used for grain continues to be the Nation's most valuable crop.

At $5.9 billion, corn's 1971 production value led soybeans ($3.5 billion) by slightly over $2.4 billion.

In third spot was baled hay, with $3.3 billion, followed by all wheat ($2.2 billion) and lint cotton and tobacco (each with approximately $1.4 billion).

The ranking for these six crops was essentially unchanged from 1970's.

In the State breakdown, California was first, with a combined crop value of $2.7 billion. Next were Illinois ($2.2 billion), Iowa ($2.1 billion), and Texas ($1.8 billion).

These preliminary figures are for 78 crops and include price support payments. Values relate to the crop year, and not cash receipts during calendar year 1971. (*4*)

Fertilizer Prices Might Creep Up

Most fertilizers will cost no less in '72 than the year before. If anything, prices paid by farmers will inch up a bit . . . with the possible exception of nitrogen.

ERS's annual report *The Fertilizer Situation* indicates prices will move along the following lines:

Nitrogen. Price prospects pivot mainly on whether—and by how much—corn plantings will be down from last year. A significant reduction in the Corn Belt would lessen the demand for nitrogen. With plentiful nitrogen supplies, farm prices for nitrogen materials, and for mixed fertilizers with a high nitrogen content, might back off somewhat.

But if in addition weather should be unfavorable at planting time, some retail prices would be pushed even lower.

Phosphate. Demand for high-analysis phosphate fertilizers will stay strong, so prices are likely to hold at their 1972 ceilings. These phosphates, a key commodity in world trade, command high prices overseas. More and more U.S. producers are after this business, and domestic availabilities are under pressure.

Retail prices for normal superphosphate have reached record peaks. Little relief is in sight, as some manufacturing plants are closing down and supplies are expected to shrink.

Phosphate rock prices may gain moderately, primarily because of steepening marketing costs. Another factor boosting delivered prices is a mineral severance tax passed by the Florida legislature and effective July 1, 1971. Florida produces about three-fourths of our output of phosphate rock.

Sulfur. Surplus supplies will keep sulfur prices low. However, prices might strengthen over time; it's questionable how long domestic sulfur producers can maintain a viable industry at the currently low prices.

Potash. Moderate price change may lie ahead, and farmers may be paying higher average prices in the spring as demand mounts. Also, if the value of the U.S. dollar declines relative to the Canadian dollar (North American potash prices are based on Canada's), the price of Canadian potash in U.S. currency would move up and the higher cost passed on to U.S. users. (*5*)

Diversity Marks Big Midwest Corn Farms

Midwestern corn farms have a lot in common, but they also have their differences. Size is an obvious difference but not the only one. Take, for example, nine large units in Illinois, Indiana, Iowa, and Ohio, each with between 1,700 and 8,600 crop acres in 1969.

Though the nine farms were not typical of Midwestern corn farms, they were included in an ERS study focusing on various sizes of the area's corn farms.

Five of the nine farms were owned by one or several individuals with a relatively high net worth, and who had extensive nonfarm business interests. These farms were owned and operated under a corporate form of business organization. Most had hired managers.

The other four farms were family owned and operated, and managed by family labor. Three were father-son partnerships; one was a corporation. The owners' net worth was $250,000 or more. Outside business interests were limited.

Corn yields increased on all nine farms during the 1960's. Owners of the family-operated farms expanded their crop acreage by at least 80 percent, but put little emphasis on enlarging their livestock operations.

The other five owners concentrated on expanding livestock production and related activities. Their crop acreage remained essentially unchanged. Owners of these farms, mostly with hired managers, are apparently quick to take advantage of new profit opportunities. They were able to draw resources from other business holdings when opportunities developed on their corn units. (*6*)

Northeast Leads In Farmland Value Increases

The average market value of an acre of farmland went up 5 percent nationally during the year ending November 1, 1971, marking the sharpest increase in 3 years.

The total value of farm real estate hit $221 billion in November. The average market value of a farm operating unit reached $86,000, and the average value of an acre of farm real estate rose to $205. A year earlier, the total value of farm real estate reached nearly $211 billion, while a farm operating unit was at $80,000, and an average acre was worth $195.

Activity in the farm real estate market livened substantially during the year as a result of increased money supplies for farm mortgages and lower interest rates.

The Northeast, with a 9-percent increase in real estate market values led all regions. Gains were greatest in Delaware and Pennsylvania, each with 11 percent. The upsurge in the Northeast is attributed to a strong continued demand for farmland for urban and recreation uses. Those who responded to the national farm real estate survey believed that more than a third of the farmland sold for farm purposes in the Northeast in 1971 will be out of agricultural use within 5 years after being purchased.

In contrast, only 3 percent of the farmland sold in the Northern Plains is expected to be out of agriculture 5 years after purchase.

Increases in farmland market values were smallest in Washington and Kansas, where average value per acre rose 1 percent. In Kansas, market values were held down by rising production costs, accompanied by stabilized gross farm income and limited off-farm employment opportunities for farm operators and their families. Washington's small increase may partially reflect high unemployment in the nonfarm sector and this decreased the demand for farmland for nonfarm uses. (*7*)

Unchanged for some 300 years, the maple sirup industry began putting on a new face about 25 years ago to meet challenges for timber and for labor in the sugar grove.

Maple sirup is one of the few winter crops of the Northeast and Great Lakes States.

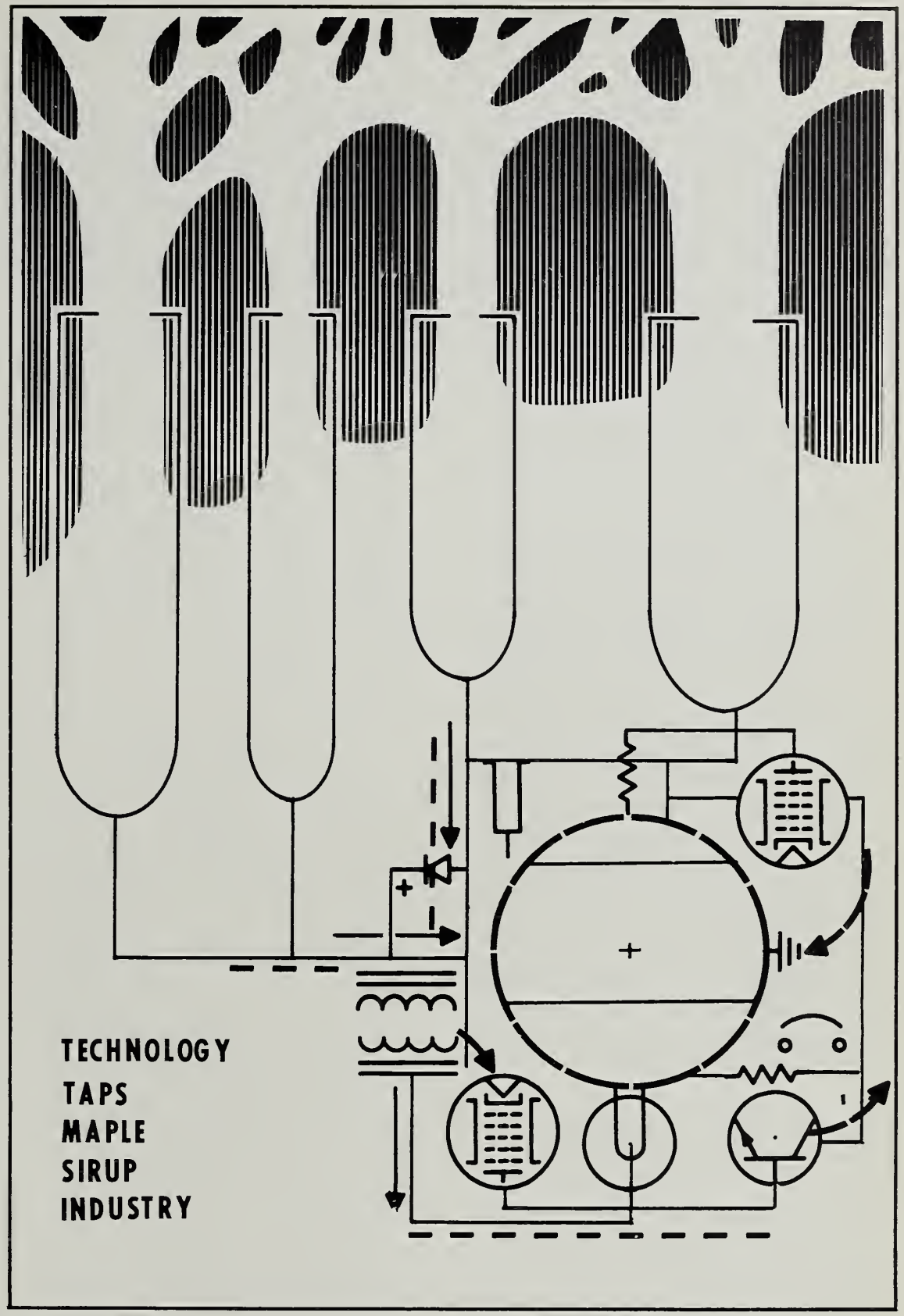
This time of year, the sap is "dripping dollars" into farmers' buckets. Late winter and early spring bring the thawing days and freezing nights that promote the sugar-laden flow.

In 1970, farm value of sirup production was better than $7.5 million. New York and Vermont each account for about a third of U.S. production, followed by Wisconsin, Pennsylvania, Michigan, Ohio, New Hampshire, Massachusetts, and Maine.

Although maple products are a good cash crop, coming in when most farm work is at a standstill, far fewer trees are tapped today than 50 years ago. Production, on a maple sirup basis, dropped from an annual average of 50 million pounds in 1916-20 to 11 million pounds in 1965-68. Only about 5 percent of our sugar maples are tapped.

Among the reasons: sugaring has always been too labor intensive for many landowners; the fine qualities of sugar and black maple trees as a hard wood have made it profitable to sell the trees as timber; and alternative farm operations often have provided higher returns.

Today's science and technology, though, have opened new avenues for the producer. Sugaring can be done faster, with less labor, and yields a better quality product than ever before.



As a farm commodity, maple sirup is one of our oldest products. Long before white settlers came to America, Indians along the Great Lakes and the St. Lawrence River had discovered they could make sugar by throwing heated stones into wooden troughs filled with the sap of the sugar and black maple trees. Once the water was steamed off, the sugar made an excellent bartering product. The settlers learned the process from the Indians soon after arriving.

Through the next 3 centuries, the steps of sugaring stayed essentially the same. The sap was caught in wooden buckets and boiled down in an iron kettle (later in wood-fired evaporators).

But in the past 25 years, new methods have made their mark in the maple sirup industry. There's been fertile ground for improving the sugaring process, which has several problem areas.

First of all, it's usually hard to collect. Last year, the snow was so deep most farmers couldn't even get in to the woodlands to tap their trees.

Trees must be tapped each year in a different place (up to 4 taps per tree, depending on tree size). When

the sap flows, it must be collected daily—and about 40 gallons of sap make a gallon of sirup. Evaporating must be done immediately, too, for sap is perishable and will ferment.

Boiling down the sap is another exacting job. Maple sirup must contain 66 percent solids by law.

Over the past 25 years, these innovations have taken place:

Plastic tubing. Plugged into the tree, run from tree to tree and then into a collecting vat, tubing cuts down on labor requirements. An estimated 75 percent of the producers now use plastic pipelines.

Central evaporators. Farmers in many areas can sell their sap to evaporator plants.

Before 1955, no market existed for maple sap and it had to be converted on the farm to sirup or sugar. It was one of the few farm crops that was not marketable as produced. Now sap producers no longer have to be skilled sirup makers, and the larger evaporators can take advantage of new technology to produce uniform and better quality products.

Power drills. Gasoline or electric powered portable drills have speeded up tapping of trees compared to the carpenter's brace.

Disinfecting pellets. Inserted into the taphole at the time of boring, these tablets stop growth of microorganisms that formerly stopped the sap flow prematurely.

Vacuum pumps. Pumps are used by some producers to move sap through the tubing network when gravity can't do the work. They can also be used to pump sap from trees at a faster than natural rate of flow.

Tanks fitted with ultra violet lights. These ultra violet rays allow the sap to be kept longer before boiling by preventing microbial action.

High-flavor process. Intensifying the maple flavor fourfold or more, this process is used primarily in preparing sirup that will be blended with cane and corn sirups for table sirup.

There is another process, not yet in commercial use, that removes the water from the sap more economically than conventional evaporators. Called reverse osmosis, this process was applied to maple sap concentration at USDA's Eastern Regional Research Laboratory.

Sap is put into a container and concentrated by this process which allows only the passage of water through a semi-permeable membrane. When pressure of 400-600 pounds per square inch is put on the sap, about 75 percent of the water passes through the membrane. Practically none of the solids—which include the flavor—comes through. Then the sap is boiled down further to bring out the maple flavor and color.

The U.S. produces only half of the maple sirup it consumes and imports the rest from Canada, the only other producer of maple sirup (both *Acer saccharum* and *Acer nigrum,* the sugar and black maple, are native only to North America).

Mystery Flavor

Taste the crystal clear sugar maple sap this time of year, and you'll find it's sweet.

But it doesn't look like maple sirup, nor does it have a maple flavor.

Over the years, researchers have been working to find out exactly where the maple flavor comes from. Not knowing the answer posed a roadblock to improving processing practices and equipment and developing new uses for maple products.

They've found the maple flavor comes about through chemical reactions which take place when the sap is heated to reduce its water content.

That's been demonstrated by vacuum freeze drying the sap. The end result is a white or very light yellow solid that has a sweet nonmaple taste.

Now, with such modern analytic tools as gas liquid chromatography and mass spectrography, 25 compounds related to maple flavor have been identified by chemists in USDA's Eastern Marketing and Nutrition Research Laboratory in Philadelphia.

It's possible, though, that compounds other than the 25 already found may also contribute to maple flavor. (*9*)

Most of the "maple type" sirup we buy at the grocery store is actually a blend of cane or corn sirup, with 3 to 7 percent maple sirup content. Maple sirup also is used for maple creams and candies and, boiled down, for maple sugar. (*8*)

Birthplace of Cheese: A Sheep Pouch

The making of the first cheese couldn't have been simpler.

According to ancient legend, an Arabian merchant put his supply of milk into a pouch made of a sheep's stomach and set off across the desert on a long day's journey.

When night came, he found that his milk—aided by the heat and the rennet in the pouch—had separated into curd and whey. The whey satisfied his thirst, and the cheese, or curd, his hunger.

The flavor of the cheese not only pleased the merchant, but insured it of a place through the ages. Romans enjoyed it, as did monks in the Middle Ages. Pilgrims included it on the Mayflower voyage to America in 1620.

In America today, cheesemaking is a growing industry. Per capita consumption rose almost half in the past 20 years, and within the next few years, cheese is expected to replace butter as the largest manufacturing outlet for milk.

Plants now being built are large and highly automated, with some able to handle over a million pounds of milk a day, producing 100,000 pounds of cheese.

Until the middle of the last century, cheese was a local farm industry. Then, the first cheese factory was established in Oneida County, N.Y., and for the next 50 years, New York was the center of cheese production in the U.S. But as the East grew, and its demand for market milk expanded, the cheese industry shifted westward and centered in Wisconsin's rich farm lands, still today's center of cheesemaking in the U.S.

Although there're more than 400 cheeses described in USDA's book on

Cheese Varieties, by far the most popular type in America is Cheddar. It accounted for about half of the 12.2 pounds of cheese consumed by the average American last year.

Named for the village of Cheddar, England, where it was first made, it has been around since the late 16th century.

It's made from sweet, whole cow's milk that has usually been heat-treated or pasteurized. It's processed for about a week—and rennet is still used in that processing—and then cured, normally for approximately 3 to 6 months. (*10*)

Red Meat Menu Features More Beef in '72

Meat counters are likely to display more beef this year than last, but less pork, veal, and lamb and mutton. On balance, we'll probably eat about the same amount of red meats as in 1971—around 192 pounds per person.

Beef consumption, after dipping in '71, is projected 4 to 5 pounds higher than last year's 113 pounds per person. Supplies will be more plentiful in '72 because of increased beef production plus the prospect of larger beef imports.

Pork consumption jumped 6 pounds per person in 1971 to 73 pounds—the most since 1952. But a severe cost-price squeeze last year caused hog producers to cut production. So, 1972 supplies and per capita pork use may be 4 to 5 pounds lower than in '71.

Veal use has been declining for several years and another reduction is in sight for '72. Last year's consumption averaged only 2.7 pounds per person, down from 2.9 in 1970. Reason is the dairy herd is getting smaller. Also, more and more calves are being fed to heavier weights rather than being slaughtered for the veal market.

As with veal, use of lamb and mutton has been slipping. It fell to 3.2 pounds per person last year, and will move lower again in 1972 because of a moderate drop in production. Moreover, the Nation's sheep flock is shrinking. (*24*)

In a Nutshell

U.S. production of English walnuts cracked all records in 1971. At 125,000 tons (in-shell basis), the crop was 12 percent bigger than 1970's and 70 percent more than the 1960 crop.

The U.S., the world's leading producer of English walnuts, provides nearly half the global supply. More than nine-tenths of our walnut acreage is in California's San Joaquin and Sacramento Valleys. Most of the remaining acreage is found in the Willamette Valley of Oregon, but some walnuts are also produced commercially in southern Washington.

Primary reason for last year's production gain is that more and more young trees planted in the early 1960's are just now coming into bearing. (It usually takes 10–12 years for a new tree to bear.)

Today there are approximately 195,066 acres of English walnut trees in California, of which an estimated 40,000 have yet to reach the bearing stage.

In recent years the domestic market has taken about 60 percent of the annual walnut crop, with the remainder going in the export market.

In the U.S., total use of walnuts has risen with population growth, though annual per capita consumption has remained steady at around a third of a pound since 1960.

Grocery wholesalers, chainstores and mixers are by far the largest purchasers of both shelled and in-shell walnuts. Other users of shelled walnuts include bakeries, confectioners, and ice cream manufacturers.

The English walnut—a misnomer, since it's actually a Persian walnut—is one of some 21 walnut species, 6 of which thrive in North America. Other native types are the black walnut, the white walnut (also known as the butternut), little walnut, Arizona walnut, and the California walnut.

Wood from the English walnut is especially popular with fine cabinetmakers, while the black walnut is considered one of the best-known and most valuable of native hardwoods for making furniture. About 55 million board feet of black walnut are cut each year, mainly in Ohio, Indiana, and Missouri. (*12*)

'Where Do Dollars Go?' Topic of Census Survey

If one of your problems is "Where does my money go?," a new survey by the Census Bureau could help you out.

During 1972-73 the Census people will be interviewing 17,000 householders to get comprehensive data on consumer expenditures, primarily to bring the Consumer Price Index up to date.

In addition, participants will have an opportunity to review systematically just where their money goes over the course of a year.

The households were selected by computer to provide a representative sample of all households in the country. They're located in 76 Standard Metropolitan Statistical Areas and in more than 100 other areas, including rural places.

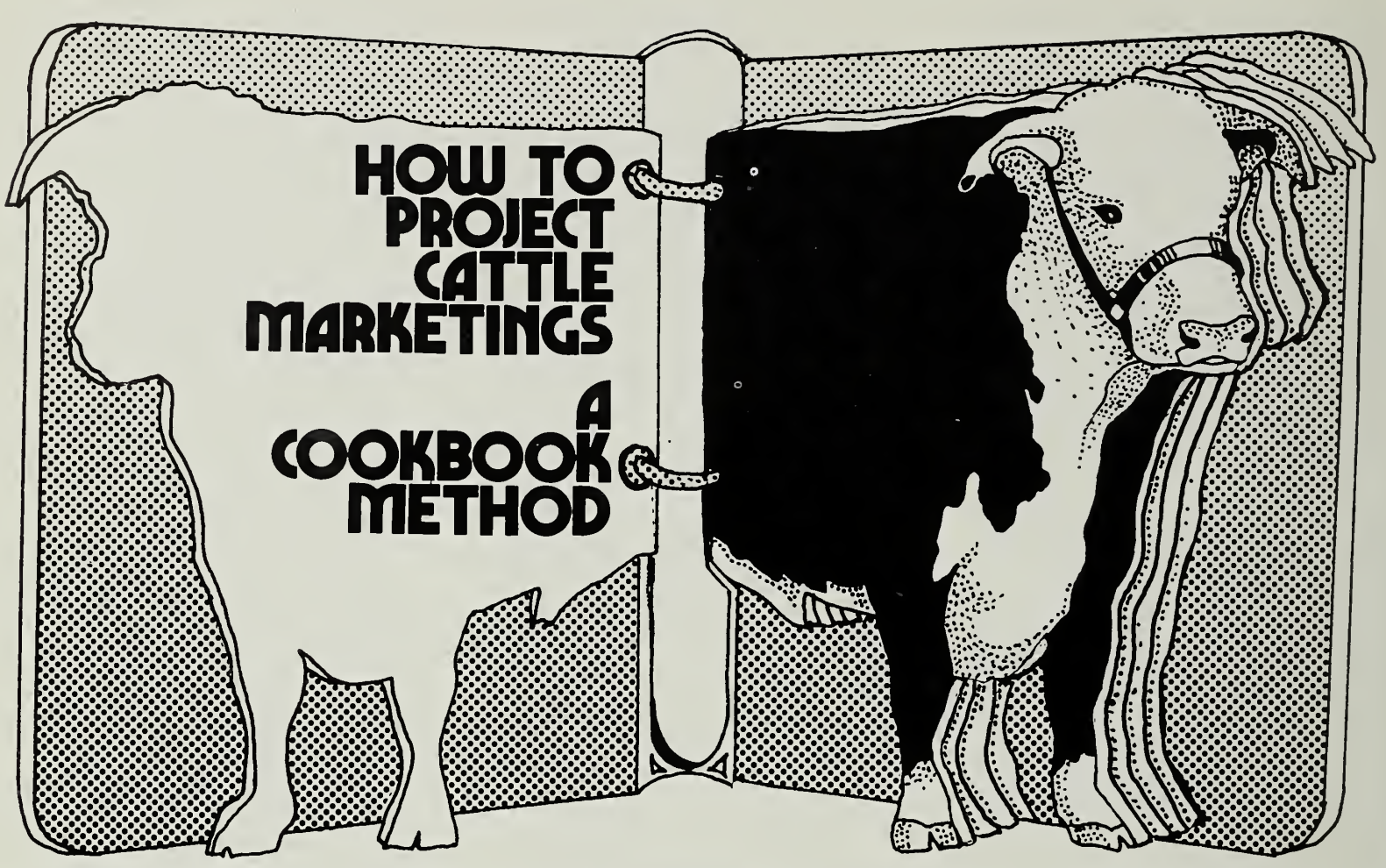
Half will be interviewed quarterly on their expenses for the 1972 year, and the other half, quarterly for the 1973 year.

Information obtained will cover most expenditures during the year, including home repairs, clothing, food and beverages, major household equipment, house furnishings, cars, vacations, insurance, medical services, school tuition and books, and rent. Real estate owned, mortgage payments, and debts will also be included.

An additional 17,000 households will be asked to record in a diary their daily expenditures over a 2-week period. This will provide information on the many purchases, such as food and personal care items, that people can't be expected to recall over a 3-month period.

The Consumer Price Index is updated about every 10 years. The new information will replace consumer buying information last gathered in 1960-61, and will show intervening changes in buying patterns.

About 4 million workers are covered by collective bargaining contracts which provide for increases in wages based upon changes in the index. (*13*)



With a pencil and the quarterly Cattle on Feed report, anybody can make a "ballpark" projection of cattle supplies in the next 3 months, or even in the next 6.

The Cattle on Feed reports compiled by the Statistical Reporting Service can be a real boon to those who keep tabs on the beef situation.

The bulk of the Nation's beef supply—about 75 percent—comes from fed cattle produced in feedlots. Thus, potential supplies of fed cattle, more than any other single factor, help determine all cattle prices in the short run.

The monthly Cattle on Feed reports show the number currently on feed, placements, and marketings for seven important cattle States. The quarterly reports give similar data for 23 States, plus the breakdown by weight groups and producers' intentions to market fed cattle during the next 3 months. The quarterly report is the one many forecasters use to project marketings as much as 6 months in the future.

The forecasters have a wide assortment of methods for calculating "would-be" supplies and prices. Making price estimates, however, gets much more complicated than prefiguring the marketings of fed cattle.

True, sharp changes in fed cattle marketings are generally accompanied by price changes in the opposite direction. But more than cattle supplies explain price gyrations. The big picture is especially affected by changes in supplies of competing meats, notably pork and poultry.

Price forecasters also consider such factors as consumers' purchasing power, imports and exports of meat, and stocks on hand, etc.

Of the many approaches to estimate future cattle supplies, one of the simplest—and fairly reliable—involves putting together two charts like those on the facing page. These charts show the relationship between the number of cattle on feed on April 1 and fed cattle marketing in April-June and July-September.

Briefly, the points in the top chart show actual fed cattle marketings for the April-June quarters during 1960-71, and the combined total of the number of steers on feed as of April 1 weighing more than 900 lbs. and heifers, over 700 lbs.

When the next quarterly report is published in April, you can make your own estimate of spring and summer marketings: Add up the number of steers and heifers in the appropriate weight classes and use the diagonal line as a guide to likely marketings. For example, if on April 1 there are 4.5 million animals in the combined total of steers weighing more than 900 pounds and heifers weighing more than 700 pounds, marketings probably would rise to around 6.7 million head during the April-June quarter.

The two weight classes (steers over 900 lbs. and heifers over 700 lbs.) are selected because cattle on feed usually gain around 80 lbs. per head per month. At this rate of gain, the cattle in these weight classes would reach the standard marketing weight of somewhat over 1,100 lbs. per head for steers and about 950 lbs. for heifers in the April-June period.

The same procedure is used to estimate marketings for the July-Sep-

tember quarter (bottom chart), except that the weight classes to be totaled are 700-900 lbs. for steers and 500-700 lbs. for heifers. Again, most of the cattle in these groups would reach market weight (figuring 80 lbs. gain/mo.) during the period under review.

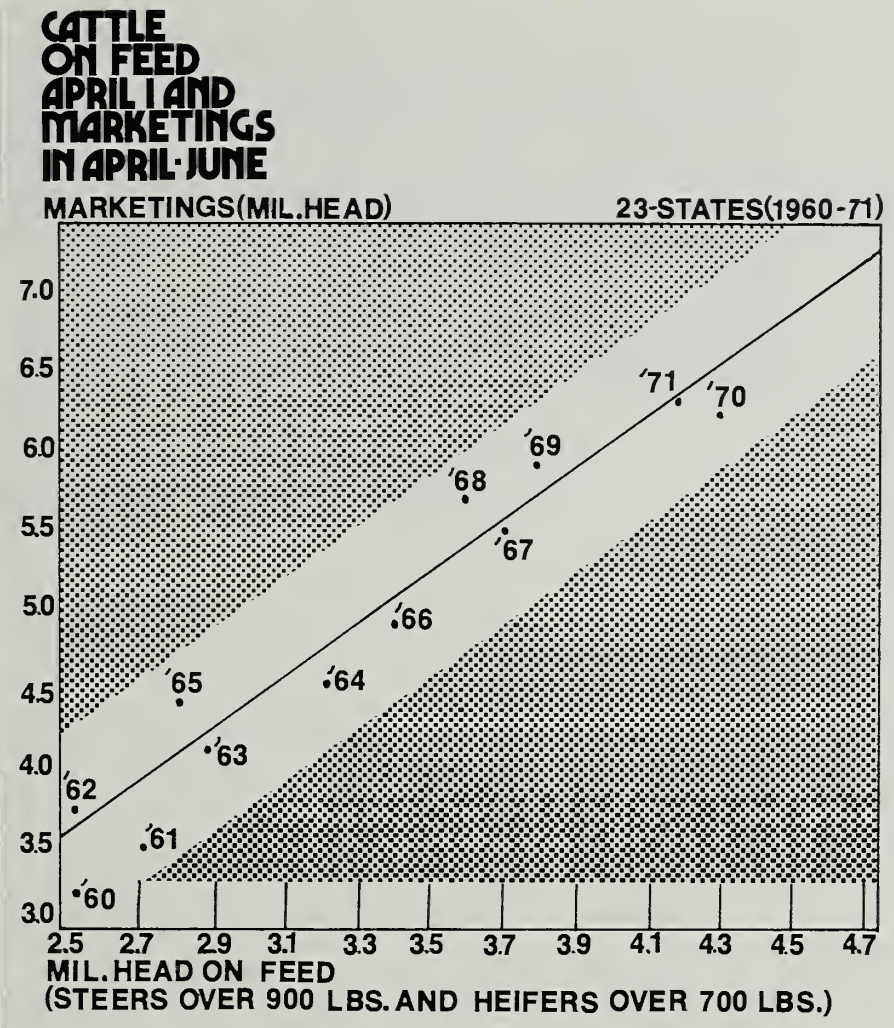
If this method were 100-percent accurate, all the dots on the charts would have fallen on the diagonal line. The reasons the dots were off in most cases provide further insights into projecting cattle marketings.

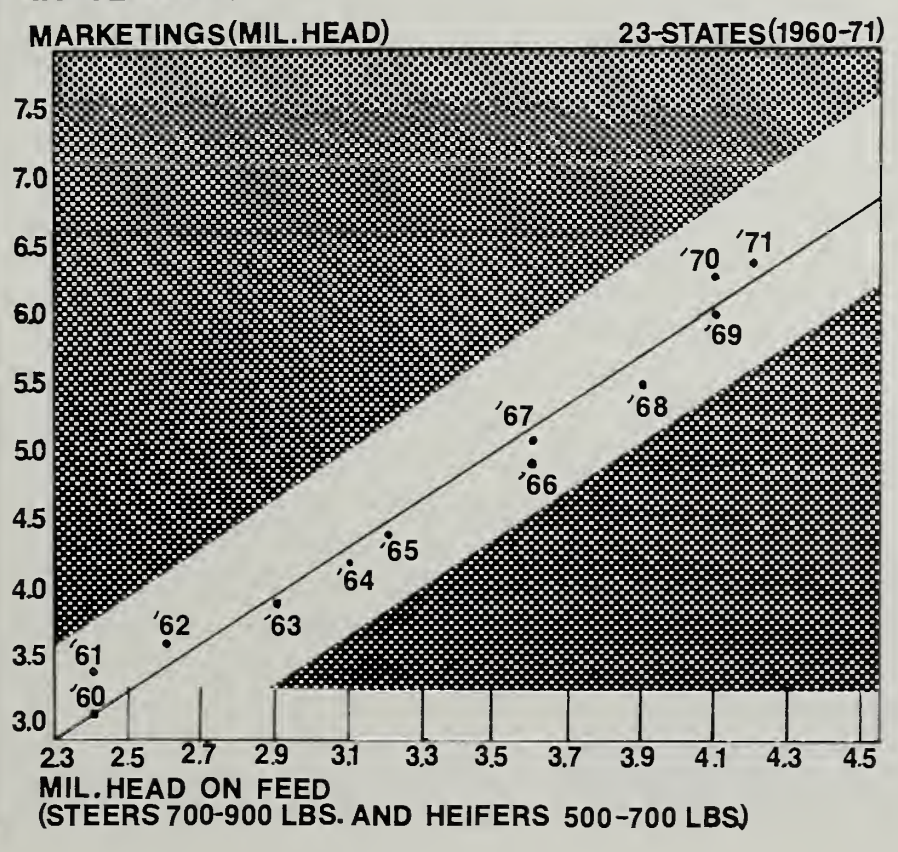
The dots fell above the line in years when cattlemen moved their stock to market earlier than usual, and vice versa for the dots below the line. There's a logical explanation for this, or more likely, several explanations. Maybe the pace of marketings varied because of weather extremes. Or perhaps levels of cattle prices were the main force. High prices often tempt cattle feeders to market at lighter weights, and low prices generally encourage heavier weights. Variations from the usual market pattern also reflect either very large (or small) placement on feed during the spring and early summer.

In any event, it's possible to narrow the margin of error in making forecasts by allowing for any conditions that you think might spur or curb marketings.

What about producers' intentions as given in the Cattle on Feed report? Are intentions carried out? Generally speaking, the intentions are a pretty good indicator of future marketings for the quarter ahead.

Doing your own estimates, though, serves to check the marketing intentions of producers in the 23 States. In addition, the intentions report reflects industry conditions at one point in time. Should there be changes in those conditions, producers might well alter their plans in the next 3 or 6 months. If so, the points plotted on the two charts are good benchmarks for estimating variations from the "would-be" marketings in a normal situation. (*14*)





Diverse Size of Hog Farms Challenge to Feed Dealers

The "typical" customer for hog feed is changing in Illinois—a fact that feed dealers and manufacturers must consider for some years to come.

An ERS study in cooperation with the University of Illinois indicates there is a wider range of customers than ever before, and their needs vary so much that feed distributors are going to have to make a choice of catering to one size of buyer or of offering a much wider array of services.

More than 50 percent of all Illinois hog production in 1958 came from farms with 30 litters or fewer a year. But by 1968, only about a fourth of production came from this size farm. Meanwhile, farms with 100 litters were increasing.

The larger hog producing enterprises have different buying and feeding patterns than smaller ones: they do much less free-choice feeding and tend to use rations based on soybean meal rather than commercial supplements. They also do more on-farm grinding of feed and generally select terms of purchase that provide sizable discounts.

Right now, some custom feed processors do not stock the necessary ingredients for rations based on soybean meal and are willing to mix only their own products with homegrown grains. Thus the larger producer who uses soybean meal—and a third of those producing 100 litters or more a year did in the late 1960's—usually does his own processing on the farm. However, modern on-farm equipment is a cheaper method of processing only when feed processed exceeds 200 tons a year.

One option that was used by 32 percent of the farmers raising 100 or more litters was the annual use contract. It is offered by some dealers and furnishes feed on an annual basis. Customers get a discount based on yearly feed use (over and above other discounts). The contract is usually advantageous to the producer who buys most of his feed from one dealer only and who knows the volume of hogs or other livestock he plans to raise. To the feed dealer and manufacturer, these contracts can reduce uncertainty as to the quantity to be sold and provide opportunity to reduce selling costs.

Projections are that by 1980 11,000 farms that produce 50 litters or more a year will account for 70 percent of Illinois' hog production and that 1,150 farms that produce 200 litters or more will account for 20 percent of the production. Yet there will still be 11,000 farms raising 20 litters or less a year.

The study foresees that feed manufacturers will probably need to deal directly with many of the largest producers to provide needed services. The number of dealers will probably continue to decline, while technical service staff of feed manufacturers will be in greater demand. (*15*)

Study Spans 16 Years Of Cotton Ginning

Over the past 16 years, cotton farmers in the 16 cotton-producing States have paid an average of $205 million a year for ginning.

And they've seen charges for ginning increase steadily from $12.75 per bale to $19.40.

This information comes from an ERS summary of studies on ginning charges from the 1955-56 season through the 1970-71 season.

During that time, other significant trends evolved:

- Ninety-eight percent of the cotton was harvested mechanically in 1970-71, compared to 23 percent in 1955-56.
- The number of gins in operation declined from 6,929 to 3,754.
- Total cotton production fell from 14.7 million bales to 10.1 million.
- Cotton purchased by ginners increased from 19 percent to 30 percent of the crop. (*16*)

Tobacco Auction Marketing Could Be Streamlined

American flue-cured tobacco growers pay about 3 cents for marketing charges out of every dollar of cash receipts.

By comparison, that's about 3 times what Canadian producers pay at their main market in Ontario.

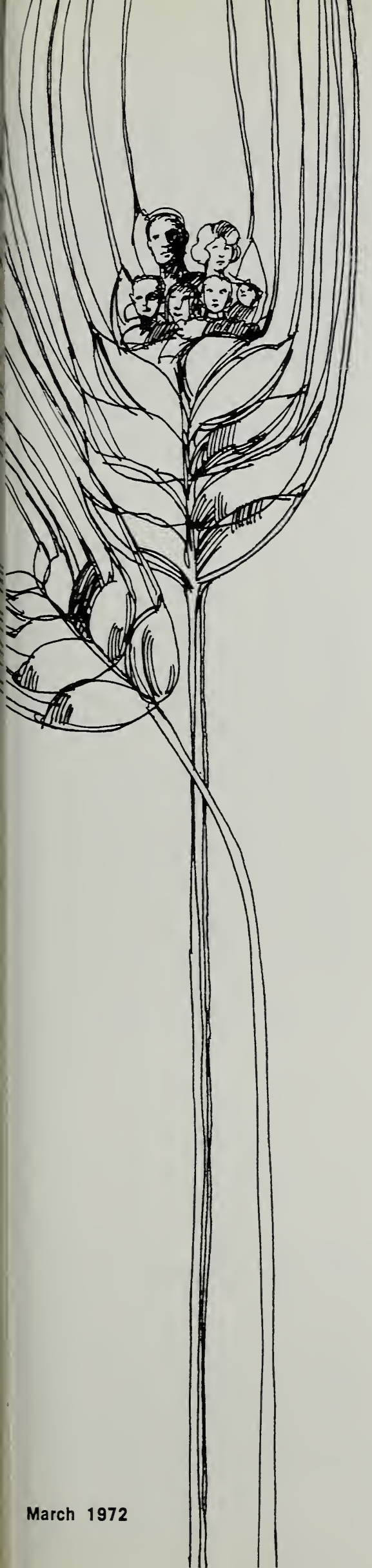
The higher marketing costs in the U.S. are partly the result of inefficiencies in the tobacco auction marketing system, an ERS economist told this year's Tobacco Workers Conference in Chattanooga, Tenn.

He pinpointed three areas for review:

Overcapacity in the marketing system. As one example, 16 additional warehouses opened in the flue-cured belt during 1970 even though there was already a huge surplus of floor space. Expansion was due to the practice of allocating sales time and volume to warehouses on the basis of previous sales data and warehouse floor space.

Sales limited to small lots and short hours. For flue-cured tobacco, sales per group of buyers are limited to 500 baskets per hour with a maximum of 76,000 pounds per hour. During the 1970 season, sales on nearly all days were limited to 4½ hours or less with some days cut to less than 2 hours. None of the markets outside of the Georgia-Florida area operated more than a 4-day week. These restrictions plus declarations of sales holidays increase the cost considerably of maintaining a full-time buying crew in the market.

Unorganized delivery of tobacco to the market. Many flue-cured auction warehouses accept growers' tobacco on a first come, first serve basis. Long lines of trucks wait for days to be unloaded. The delays add to marketing costs, and also may result in lower quality tobacco because of exposure to the weather. Recent advanced bookings by some warehouses for delivery have provided some relief. (*17*)



challenge to agriculture—produce & protect

The year 2000 looms ahead with a two-sided charge to agriculture—expand production to meet stepped up consumer demand, but at the same time, preserve and protect environmental quality.

Agriculture is being called upon to perform two competing feats at once: produce abundant and inexpensive food and fiber, while maintaining a wholesome environment.

Technological advances, such as chemical fertilizers, pesticides, and feed additives to stimulate growth, allow agriculture to fill the first mandate. In recent years, however, it's become increasingly clear that many of the same inputs that promote abundant, least-cost production may threaten our environmental and physical well-being.

Questions have been raised: If population and incomes continue to climb at present rates, will agriculture be able to meet the Nation's food and fiber needs in the year 2000 without doing damage to the ecology? What if it becomes necessary to impose restraints on production technology in order to protect environmental quality?

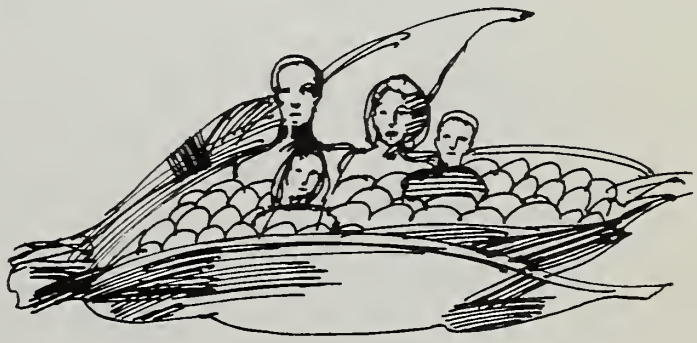
Three main forces will determine the outcome of this debate: population growth, economic growth, and application of agricultural technology. ERS researchers projected high and low levels for each of these variables to the year 2000, and examined their impact on agriculture and the environment.

Population growth. High: 321 million, up from 205 million in 1970. Low: 266 million.

Economic growth. High: Output per man-hour continues to rise 2½ percent annually. The average work-week shortens by ¼ percent per year to about 37 hours in 2000. Unemployment rates average 4 percent. This results in a growth rate in GNP of 4.1 percent with high population growth, and 3.8 percent with low population growth. In 2000, per capita disposable incomes (in 1967 dollars) are $6,351 with high population; $7,096 with low population—compared with $2,845 in 1968.

Low: Same output per man-hour, but the average workweek drifts below 30 hours by 2000. Resulting GNP growth rates are 3.4 percent with high population, and 3.1 percent with low population. Per capita incomes would average $5,126 to $5,727 for high and low population growth rates, respectively.

Technology. Unrestricted: Expanded use of chemical fertilizers, pesticides, feed additives, and greater concentration of animals in



confined feeding areas result in rapid increases in yield per acre and livestock output. Restricted: Constraints are placed on use of production inputs, as well as on the type of waste treatment required for livestock.

For purposes of the study, researchers assumed that the next several years would not see any drastic changes in lifestyles or international relations, and that other factors affecting agricultural development and trade would continue at current trends.

The high and low levels of population, income, and technology can be mixed in eight different combinations, or alternative futures. ERS took a close look at five.

The first future combines high economic and population growth with unrestricted use of agricultural inputs. This would result in a high level of consumer demand in the year 2000 with minimal production costs for farmers. Compared to 1970, less labor and cropland would be needed to fill consumer demand, since crop yields would go up with use of more pesticides and chemical fertilizers.

Future 2 also teams the high projections for population and incomes, but application of production technology is restricted. With constraints on fertilizers, pesticides and animal waste disposal methods, cropland requirements would soar above 1970 levels. Labor requirements, though well below the current mark, would be the highest of the five futures.

In future 3, high population growth is coupled with slow economic growth. Production technology is restricted. Even so, there'd be slightly less pressure on land and labor than in future 2, as the lower rate of income growth would hold down per capita demand for farm products.

In future 4, low population tends to depress overall consumer demand, even though incomes are projected high. No constraints are placed on use of chemical fertilizers and other high production inputs. Limited consumer demand and large per-acre yields combine to make future 4 require the smallest amount of land and labor of all the other alternatives. Farm prices in this future would also be the lowest.

In future 5, consumer demand is weakest, as low population growth is coupled with low per capita incomes. Food and fiber output under this alternative would be the smallest of any of the futures, as light consumer demand is met with restrictions in inputs. Land and labor requirements, however, would be above future 4's; commodity prices would also be somewhat higher.

Population's impact on environment and agriculture can be seen by comparing alternatives 1 and 4, as both futures share the same projections for economic growth and production technology.

Future 1 contains 54 million more people than future 4. To meet consumer demand, agriculture would require 32 million more acres of harvested cropland, 2 million more tons of nitrogen fertilizer, 50 million more pounds of pesticides, and .2 billion more man-hours of labor. Total output and the index of commodity prices would be roughly 15 percent greater under future 1.

If environmental quality is the overriding concern, alternative 4 can be considered better than alternative 1. With some 50 million fewer people to clothe and feed, less cropland, pesticides and fertilizers would be required. And less animal wastes would be produced. Food costs would be lower, although farm prices would drift below those in alternative 1.

The effects of different rates of economic growth on agriculture can be examined by comparing futures 2 and 3, as both futures assume the same population growth and input technology. Per capita incomes, seen lower by $1,225 in future 3, would cause overall demand for farm goods to slacken.

With less buying power than future 2's population, consumer demand would shift somewhat from

SCENARIOS TO THE YEAR 2000—OPTIONS FOR AGRICULTURE

Item	Unit	1970	Year 2000: alternative futures				
			1	2	3	4	5
DEPENDING ON WHAT HAPPENS TO . . .							
Population growth			High	High	High	Low	Low
Economic growth			High	High	Low	High	Low
Applicaton of agricultural technology			Unrestricted	Restricted	Restricted	Unrestricted	Restricted
AGRICULTURE WOULD USE THESE AMOUNTS OF . . .							
Labor	Bil. man-hrs.	6.5	2.5	4.0	3.9	2.3	3.5
Fertilizer	Mil. tons	6.3	14.8	9.4	9.2	12.9	8.2
Pesticides	Mil. lbs.	410	660	140	130	610	120
Total cropland	Mil. acres	440	422	471	468	410	422
Pasture and range*	Mil. acres	636	617	580	580	613	617
Other agricultural land	Mil. acres	29	27	27	27	27	27

* Includes pasture on and off farms except cropland pasture.

purchases of livestock products to those of food crops. Lower consumer demand would depress prices and cause some tapering in agricultural output.

Researchers found, however, that the reduction in use of production inputs—land, labor, fertilizer, and pesticides—caused by lessened demand in future 3 was hardly significant in terms of actual quantities and percentages. Thus, compared with future 2, where inputs are also restricted, future 3 offers little improvement in environmental quality.

The impact of harnessing production inputs becomes apparent when futures 1 and 2 are compared. Both futures fuse high incomes with large populations to create the highest level of consumer demand.

At first glance, future 2 would seem the environmentalists' choice. Due to input restrictions, nitrogen fertilizer use in 2000 would average 45 pounds per acre—about 30 pounds per acre below the future 1 level. Per acre pesticide use would fall below ½ pound in future 2—from 1½ pounds in the first alternative. Harmful residues from fertilizers, pesticides and wastes would be substantially reduced.

But future 2 has a major shortcoming—production would be spread over many more acres to compensate for reductions in high-yield inputs. In fact, researchers estimate that future 2's cropland requirements would be 50 million more acres above future 1's, where production technology is unrestrained. Moreover, additional acres in cropland would increase the risks of harming the environment, particularly from soil erosion. (*18*)

Financing Public Facilities: A Tale of Three Towns

Different rates of population change may cause small communities to choose different ways of financing capital expenditures for public facilities like water and sewer systems and police and fire protection.

That's the thrust of an ERS investigation of municipal capital expenditures in three towns in the State of Washington with varying population trends during 1930–65.

In 1930, the towns of Kent, Roslyn, and Dayton each had roughly 2,000 residents. Kent's population quadrupled by 1965. Population declined in Roslyn with the closing of the area's coal mines. Dayton's population, meantime, hovered near 1930 levels.

The communities drew about two-thirds of their total capital expenditures from four sources:

- Special property assessments by local improvement districts;
- Intergovernmental transfers—funds supplied by Federal, State, or other government units;
- Sales of municipal bonds; and
- Donations from private citizens and organizations.

"Other" sources, such as current revenues, investment earnings, accruals, and short–term city indebtedness made up the remainder of the towns' investment capital.

Kent, the growth community, financed public facilities through heavy reliance on special property assessments and increased bonded indebtedness. Sales of municipal bonds accounted for over 50 percent of the investment capital secured in Kent during 1930–65. Funds transferred from other governments were an insignificant share of Kent's total capital expenditures.

In the town of Roslyn, whose population declined in 1930–65, intergovernmental transfers were the main source of investment funds. No funds were derived from local improvement districts. Sales of municipal bonds accounted for only 2 percent of Roslyn's investment capital —compared with 51 percent in the growth center.

Dayton, the stable community, used a still different set of funding options. Funds from local improvement districts, increased bonded indebtedness, and donations together made up less than 15 percent of the town's public investment spending. Seventy-one percent of Dayton's capital expenditures came from "other" sources, mostly from current revenues, investment earnings, accruals, and short term indebtedness.

Individual services claimed varying shares of each community's public spending. For example, street expenditures took only 16 percent of Kent's total investment, but 56 percent of Roslyn's.

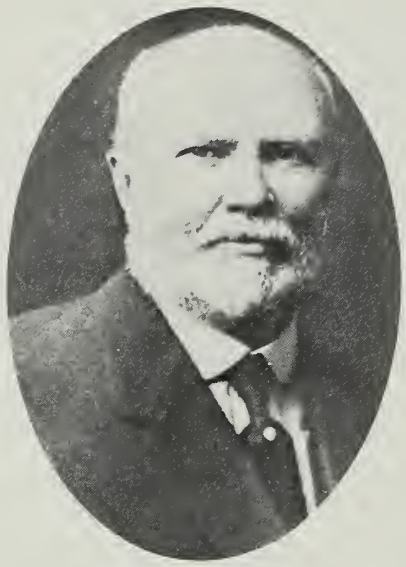
The towns also varied in the allotment of each funding source among community services. Kent and Dayton—the growing and stable towns —used all their funds from special assessments to partially finance water, street, and sewer systems.

Kent confined use of government transfer funds to streets and sewers, but Dayton also used transfers to cover parks and general government functions. And Roslyn, the community with declining population, committed all transfer money—half of its total expenditures—to streets, water, and parks.

Roslyn used a single bond issue for only a portion of police and fire expenditures during 1930–65. Dayton sold municipal bonds only for water facilities. But Kent, the expanding community, used bond issues to finance investments in police and fire protection, libraries, water and sewer systems.

Though limited to three towns, the findings suggest that growing communities are willing and able to make public investments that require stepping up bonded indebtedness. But towns facing recurrent population losses may confine their expenditures to those that can be underwritten with outside financial assistance—intergovernmental transfers.

The community with a stable number of residents avoided investments that would increase bonded indebtedness. Stable towns may seek to finance public services with funds from a mix of "other" sources, such as short-term credit and operating surpluses. (*19*)



Men and Milestones

CALIFORNIA, 1900 — **George W. Chaffey** *joins the California Development Company, formed to irrigate the Colorado Desert.*

Today the Colorado Desert is called the Imperial Valley, California's most productive agricultural region. George Chaffey, the engineering genius who began the transformation, is almost forgotten.

He was born in Brockville, Ontario, Canada on January 28, 1848. After a formal education that ended when he was 13, Chaffey built a reputation as one of the most skillful marine engineers in the Americas.

In 1880, at age 32, he traveled to a new career in Southern California as an irrigation engineer.

From California, Chaffey with his brother, William, went to build an irrigation system at Mildura, Victoria, Australia. The Mildura project marked the beginning of modern Australian irrigation. But it was a financial failure.

Bankrupt, George Chaffey returned to the U.S. and went to work as a railroad promoter.

Raising $100,000 through his son, a wealthy Los Angeles banker, he next joined the California Development Company. He rechristened the Colorado Desert as the Imperial Valley and set to work building a canal to carry water from the Colorado River. The ditch was completed in 1901.

That same year a series of stock manipulations forced Chaffey out of the Company and finished his engineering career.

Among his accomplishments as an irrigator and promoter, Chaffey was the first in America to combine hydro-electric and irrigation works; he was the first to line irrigation ditches and to convey water under pressure on a large scale; and he pioneered electric lighting and long distance telephone development in California.

In 1970, Imperial County, California produced $270-million worth of agricultural products. It was fitting testimony to the dream of George Chaffey, a man who helped water the deserts of two continents. (*20*)

New Hampshire Elderly Say Lifestyle Suits Them

The typical senior citizen in New Hampshire owns his own home, is generally satisfied with his life-style, and gets most of his income from Social Security.

In interviews with 140 households in all 10 New Hampshire counties, a study team found the incomes of the elderly (65 years and up) ranged from less than $1,000 to nearly $20,000 in 1970.

More than 4 of 10 households, however, reported incomes of under $3,000.

Nine of 10 households reported receiving Social Security. This also provided the main source of income for two-thirds of the households studied. Employment income—second in importance—was the major source for 13 percent of the households, followed by pensions, with 11 percent.

The lower the household's income, the greater the dependence on Social Security. It was the principal source for nine-tenths of households with incomes under $3,000, compared with only three-tenths of those in the $5,000-and-up category.

Three-fourths of all respondents were homeowners, of which only 17 percent had a mortgage on their property. One-third of the households with incomes under $3,000 rented, compared with only one-tenth with incomes of $5,000 or more.

The majority of respondents were contented with their lifestyles as indicated by replies to this question: "On the whole, how satisfied would you say you are with your way of life today?" Fifty-six percent answered "very satisfied," 39 percent "fairly satisfied," and only 5 percent gave "not very satisfied."

When asked "Which of the following do you think would improve your financial situation the most?," the item most frequently checked by respondents was "higher Social Security." The choice that ranked next was "lower property tax," then "Government help with medical expenses," and "higher State aid." (*21*)

LIGHTENING THE DAIRY LOAD

Our once mountainous stocks of butter and nonfat dry milk have been sharply eroded as a result of fortuitous developments. The foreign market played a key role.

Barely a trace remains of our Government stockpile of nonfat dry milk, which as recently as the mid-1960's was in huge surplus. The same can be said of butter, though present supplies are still much larger than those of nonfat dry milk.

The erosion of stocks held by the Commodity Credit Corporation (CCC) comes from a combination of forces. First off U.S. milk production is advancing at a slower pace than in the sixties.

Second, more and more of the milk flow is being diverted to the manufacture of cheese, thus reducing the milk available for production of butter and nonfat dry milk.

Finally, the world dairy situation took unexpected turns over the last couple of years. Milk production leveled off in many dairy exporting countries. The traditional importers of butter and nonfat dry milk have been forced to get more of their needs from other countries, the U.S. among them.

So active has been the foreign demand for CCC-held dry milk that its stocks are far from adequate to answer the call. In the first week of January, for example, the CCC bought some 800,000 pounds of milk powder on the open market. The CCC probably could have disposed of about 2-3 million pounds (were it available) that week to meet overseas plus domestic requirements.

As a result, U.S. exports of nonfat milk have trended downhill. Estimates are for only 330 million pounds in 1971, off from around 400 million in 1970 and 1.3 billion in 1964.

Reduced production at home, along with expanded demand internationally, drained CCC uncommitted stocks of nonfat dry milk from 700-800 million pounds in the early 1960's to under 4 million by the end of 1970. Supplies on January 1 this year were nominal.

Though exports of several U.S. dairy foods went into a slump in 1971, the CCC butter export program (suspended since 1963) was reinstituted and exports of butter rebounded strongly. This enabled an increase in the total export value of dairy products between 1970 and 1971—from $118 million to $135 million.

Why the takeoff in butter sales?

In the late 1960's, Western Europe faced a dairy surplus. To get rid of it, the European Community sold large quantities of butter at heavily subsidized prices. Also, the Community launched an adjustment program, which included the slaughter of some 250,000 dairy cattle in 1969-70. Farmers were given incentives to expand beef production instead.

The effort largely succeeded. Milk production for the past 2 years has remained relatively static. While milk production continues at fairly high levels in Europe, surpluses have disappeared. There seems no serious threat of another surplus problem in the immediate future.

During the adjustment program,

output of butter and nonfat dry milk was reduced. The world supply of this product also began drying up, a fact that made more nations turn to the U.S. for imports.

Then in 1970, acute drought struck New Zealand—a main supplier of dairy products to Europe, the United Kingdom in particular. Unable to get enough butter from that country, the United Kingdom—the leading importer—decided early in 1971 to suspend its quota system for the balance of the marketing year ending March 1972. Any country could ship to the U.K., and the U.S. accepted the invitation (*Farm Index,* September 1971). For the first time in 7 years, in mid-1971 we began selling butter to the U.K., nearly all of it from CCC stocks.

As of early January 1972, U.S. exporters had bought over 135 million pounds from the CCC for overseas shipment. Most was earmarked for the U.K., but some was also sold to Switzerland, Iran, Canada, the Virgin Islands, Portugal, and South America.

Canada alone bought 9-10 million pounds of U.S. butter. Like the U.S., Canada has been channeling more of its fluid milk into cheese production, and at one point developed a butter shortage in a few provinces. Canada, incidentally, was the first to ship butter to the U.K. when the quota system was suspended in March 1971.

Much of the U.S. butter that's been sold hadn't been shipped out as of January 1, mainly due to the dock strikes. Even so, in 1971 butter shipments were valued at $25 million, versus less than $200,000 the previous year. About $23-million worth went to the U.K.

The spurt in U.S. butter exports depleted CCC butter stocks to the lowest level in recent times. At the start of this year, CCC had only 20 million pounds uncommitted compared with 50 million in early 1971. Also, domestic production at the beginning of 1972 was off 4-5 percent from a year earlier.

Indications are New Zealand's dairy industry will fare better in 1972 than in 1971 and 1970. Pasture conditions have much improved, though milk production in 1972 will not return to the record of 1968.

Australia is busy industrializing its economy and diversifying its agriculture. Expanded butter exports seem unlikely.

In Western Europe, the price paid for milk products will be raised about 8 percent on April 1. Output will probably be up but no great surge in milk production is expected. Though butter stocks probably will build up to normal levels, milk still is being routed strongly to cheese.

As for Britain, it has guaranteed New Zealand a share of the U.K. butter market for at least the next 5 years. At that time arrangements for future imports will be reviewed.

U.S. butter exporters expect to do more business with British buyers for at least a short time into 1972, without saying just how much.

But the supply situation for U.S. nonfat dry milk will continue tight in the foreseeable future. The projected gain in 1972's milk production, around 1 percent, is hardly enough to produce much increase in manufacture of dry milk solids. (*22*)

Imports Take Root In U.S. Vegetable Market

The Nation's annual use of fresh vegetables, divided among the population, worked out to about 106 pounds per person in 1960. Ten years later the figure was down to 99 pounds.

The trend line would have shown an even steeper slope had it not been for hefty increases in vegetable imports. They've grown twofold since the early sixties, but most of the gain came during the 1969-71 period. Most signs point to further increases in the foreseeable future.

Though domestic output of fresh vegetables is growing slowly—and while import activity has picked up sharply—our per capita supply is not being maintained. This provides an opportunity for more fresh vegetables to come from outside the U.S.

Looking at the vegetable business from the supply side, our production leveled off in the past 5 years, after moving up slightly prior to 1967. Imports picked up the slack, enabling a small gain in the per capita availability.

Nearly all our winter supply of cucumbers, peppers, and eggplant now comes from Latin America—chiefly Mexico—as well as two-thirds of the tomatoes. (These crops are the most labor intensive among vegetables, and the ones most prone to cold weather damage.)

Taking all winter vegetables, imports amounted to about 14 percent of the winter supply during 1969-71, excluding storage stocks of cabbage and onions.

As with winter vegetables, spring vegetable production in the U.S. has held steady since 1967. One-eighth of our spring supply is imported. Imports nearly doubled between 1967 and 1971, and were 2½ times greater than in 1960-62. It was in the spring months of 1967-71 that total vegetable imports made their biggest gains. Even so, per capita supplies in this period ran moderately lower than in the early 1960's.

Imports in the summer are generally light. This, along with little rise in domestic production, caused a 10-percent drop in the per capita U.S. supply in 1969-71 from the 1960-62 average.

Fall vegetable imports have gained sharply since 1960. And, domestic output moved up 9 percent in the 1960's, so that the availability per person stayed about the same.

With rapidly rising harvest labor costs, and with the further shift to canned and frozen vegetables, any substantial gain in domestic fresh vegetable output is not likely in the next few years, according to ERS economists. The competitive advantage in production seems to be swinging in favor of Mexican imports. As things stand, a wider variety of our fresh vegetable supply may be expected to originate outside the 50 States. (*23*)

Recent Publications

AN INTERREGIONAL ANALYSIS OF THE U.S. GRAIN-MARKETING INDUSTRY, 1966/67. Mack N. Leath, Marketing Economics Division; and Leo V. Blakley, Oklahoma State University. Tech. Bull. No. 1444.

A multiproduct transshipment model was developed to analyze storage and processing in the U.S. grain-marketing industry. The model includes the quarterly utilization of regional storage capacity and explains the seasonality of grain marketing.

ECONOMIES OF SIZE AND IMPUTED VALUES OF FARMLAND IN THE IMPERIAL VALLEY OF CALIFORNIA. Walter E. Johnston, University of California, cooperating with Farm Production Economics Division, GFRR 314.*

Farm operation data obtained by a survey of farming units are studied to determine characteristics of cash-crop farms typical in the Imperial Valley of California. Costs, returns, and capacities obtained from primary and secondary data sources are used to analyze returns to land under typical crop rotations and high efficiency resource use.

FINANCIAL MANAGEMENT RESEARCH IN FARMING IN THE UNITED STATES: AN ANNOTATED BIBLIOGRAPHY OF RECENT PUBLICATIONS AND CURRENT WORK. Virden L. Harrison, Farm Production Economics Division. Miscellaneous Pub. 1222.

This volume describes the contents of 300 recent publications and 50 current research projects relating to financial management of agricultural firms. Also included are lists of teachers of graduate level courses in farm management and agricultural finance in State universities.

ECONOMIC MODELS FOR COTTON GINNING. Zolon M. Looney and Charles A. Wilmot, Marketing Economics Division. AER 214.

This report and its predecessor, *Engineering and Economic Aspects of Cotton Gin Operations—Mid-south, West Texas, Far West,* AER 116, were prepared to assist those faced with replacing existing plants or constructing complete new ginning complexes. The specific purpose of this study was to develop theoretical models incorporating the latest technologies known to ginning.

The publications listed here are issued by the Economic Research Service and cooperatively by the State universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective States.

FINANCIAL STRUCTURE OF LARGE FARMS IN THE WHEAT-PEA AREA OF WASHINGTON. Norman K. Whittlesey and M. E. Wirth, Washington Agricultural Experiment Station, cooperating with Dwaine E. Umberger, Farm Production Economics Division. WAS Bulletin 738.*

This study is concerned with the current financial structure of wheat-pea farms in eastern Washington, and their growth potential.

RURAL-URBAN POPULATION, INCOME AND EMPLOYMENT: A SIMULATION OF ALTERNATIVE FUTURES. Clark Edwards and Rudolph De Pass, Economic Development Division, AER 218.

Choices among time paths leading to alternative future levels of population, income, and employment are examined in this report as they relate to a two-sector simulation of the U.S. One of the two sectors is considered to be primarily rural in character; the other, urban.

TRENDS IN MANUFACTURING AMONG SMALL CENTERS OF PENNSYLVANIA. Theodore E. Fuller, Economic Development Division cooperating with Pennsylvania State University. Agr. Expt. Sta. Bull. 788.*

Manufacturing appears to be undergoing some relative decentralization from metropolitan to nonmetropolitan areas. The increase in the number of jobs in Pennsylvania may soon be equalized between the two types of areas.

EFFICIENCY IN THE DISTRIBUTION AND UTILIZATION OF HOSPITAL SERVICES: A CASE STUDY IN RURAL MICHIGAN. Neville J. G. Doherty, Economic Development Division, ERS 492.

The objective of this study was to develop an approach for assessing distribution and cost efficiency programs of hospitals which could be applied to any given region. The four basic areas under study included availability of hospital beds, long-run average costs of hospital operation, patient cost, and quantity and quality of hospital services.

EFFECTS ON RETURNS OF CHANGES IN PRODUCTION PRACTICES AND ENTERPRISE COMBINATIONS, SOUTHWEST LOUISIANA RICE AREA. Willard F. Woolf and Arthur R. Grelow, Farm Production Economics Division cooperating with Louisiana State University. D.A.E. Research Report No. 432.*

This report provides guidelines for selection of optimum enterprise combinations in the Southwest Louisiana Rice Area. Enterprise adjustments such as including soybean production instead of beef and rice only, and hiring of seasonal instead of regular labor—increased incomes on individual farms.

BURLEY TOBACCO—THE EFFECTS OF PRICES AND ALLOTMENTS ON PRODUCTION, FARM RESOURCE

USE, AND INCOME. University of Kentucky (and others), cooperating with Farm Production Economics Division. Southern Cooperative Series Bull. 162.*

Among other conclusions of this study, the geographic distribution of burley acreage would change if the free market were left to determine this distribution. Generally, Kentucky areas would lose in importance relative to those in Tennessee and Virginia.

THE BALANCE SHEET OF THE FARMING SECTOR. 1971. Carson D. Evans, Forest G. Warren, Phillip T. Allen, Allen G. Smith, and Robert D. Reinsel, Farm Production Economics Division. AIB 356.

This publication, 27th in a series, combines major asset and liability accounts into one statement. Comparable annual estimates are available beginning with 1940.

AGRICULTURAL FINANCE REVIEW. Nan P. Mitchem, Forest G. Warren, and Carson D. Evans, Farm Production Economics Division. Vol. 32, Supplement, January 1972.

This reference book, with data pertaining to the financing of agriculture in the U.S., covers such topics as farm mortgage credit, loans to cooperatives, the Farm Credit System, taxes, and fire and crop insurance.

FARM-RETAIL SPREADS FOR FOOD PRODUCTS. Forrest E. Scott and Henry T. Badger, Marketing Economics Division. Miscellaneous Publication 741.

Revised farm-retail spreads for a "market basket" of domestic farm-orginated foods and 46 individual foods are covered in the report. Changes in these statistics over time are analyzed; data and techniques employed in their development are described and evaluated.

AGRICULTURE AND TRADE OF EL SALVADOR. Mary S. Coyner, Foreign Regional Analysis Division. ERS-For. 323.

Agricultural production in El Salvador has been on the increase, but at a rate slower than its population. The principal export crops—coffee, cotton, and sugar—have benefited most from improved technology and from special attention given to marketing and cooperative organizations. Increased corn production has resulted from many years of research and extension work with local farmers. Wheat is the country's chief agricultural import.

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4. *Crop Values, 1970–71* CrPr 2–1–1 (72), Statistical Reporting Service.
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Economic Trends

Item	Unit or Base Period	1967	1970 Year	1970 Dec.	1971 Oct.	1971 Nov.	1971 Dec.
Prices:							
Prices received by farmers	1967=100	—	110	104	113	114	116
Crops	1967=100	—	100	99	106	108	109
Livestock and products	1967=100	—	118	108	118	119	121
Prices paid, interest, taxes and wage rates	1967=100	—	114	116	121	121	122
Family living items	1967=100	—	114	116	120	120	121
Production items	1967=100	—	110	112	116	117	117
Ratio [1]	1967=100	—	96	90	93	94	95
Wholesale prices, all commodities	1967=100	—	110.4	111.0	114.4	114.5	115.4
Industrial commodities	1967=100	—	110.0	111.7	115.0	114.9	115.3
Farm products	1967=100	—	111.0	107.1	111.3	112.2	115.8
Processed foods and feeds	1967=100	—	112.0	110.7	114.1	114.4	115.9
Consumer price index, all items	1967=100	—	116.3	119.1	122.4	122.6	123.1
Food	1967=100	—	114.9	115.3	118.9	119.0	120.3
Farm Food Market Basket: [2]							
Retail cost	Dollars	1,080	1,223	1,206	1,245	1,248	1,268
Farm value	Dollars	419	476	437	475	484	492
Farm-retail spread	Dollars	661	747	769	770	764	776
Farmers' share of retail cost	Percent	39	39	36	38	39	39
Farm Income: [3]							
Volume of farm marketings	1967	100	104	117	155	156	131
Cash receipts from farm marketings	Million dollars	42,693	49,231	4,201	6,105	5,978	5,100
Crops	Million dollars	18,434	19,636	1,999	3,426	3,475	2,600
Livestock and products	Million dollars	24,259	29,595	2,202	2,679	2,503	2,500
Realized gross income [4]	Billion dollars	49.0	56.6	55.6	—	—	60.9
Farm production expenses [4]	Billion dollars	34.8	40.9	41.4	—	—	43.6
Realized net income [4]	Billion dollars	14.2	15.7	14.2	—	—	17.3
Agricultural Trade:							
Agricultural exports	Million dollars	—	7,174	745	466	629	842
Agricultural imports	Million dollars	—	5,667	522	302	298	540
Land Values:							
Average value per acre	1967 = 100	—	[6] 118	[7] 117	—	—	[8] 120
Total value of farm real estate	Billion dollars	—	[6] 210.7	[7] 208.9	—	—	[8] 214.0
Gross National Product: [4]	Billion dollars	793.9	974.1	988.4	—	—	1,073.0
Consumption	Billion dollars	492.1	615.8	624.7	—	—	677.7
Investment	Billion dollars	116.6	135.3	137.3	—	—	156.5
Government expenditures	Billion dollars	180.1	219.4	223.7	—	—	240.9
Net exports	Billion dollars	5.2	3.6	2.7	—	—	–2.0
Income and Spending: [5]							
Personal income, annual rate	Billion dollars	629.3	803.6	820.9	871.2	874.9	883.8
Total retail sales, monthly rate	Million dollars	26,151	31,294	31,761	34,964	35,620	—
Retail sales of food group, monthly rate	Million dollars	5,759	7,176	7,553	7,391	7,536	—
Employment and Wages: [5]							
Total civilian employment	Millions	74.4	78.6	78.5	79.8	80.0	
Agricultural	Millions	3.8	3.5	3.4	3.4	3.4	
Rate of unemployment	Percent	3.8	4.9	6.2	5.8	6.0	
Workweek in manufacturing	Hours	40.6	39.8	39.5	39.8	40.1	
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	3.36	3.47	3.60	3.60	
Industrial Production: [5]	1967 = 100	—	107	105	106	107	108
Manufacturers' Shipments and Inventories: [5]							
Total shipments, monthly rate	Million dollars	46,458	54,429	54,464	57,439	59,340	—
Total inventories, book value end of month	Million dollars	84,563	100,476	100,476	100,740	100,723	—
Total new orders, monthly rate	Million dollars	46,707	53,866	55,468	57,490	59,835	—

[1] Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2] Average annual quantities of farm food products purchased by urban wage-earner and clerical worker households (including those of single workers living alone) in 1959–61—estimated monthly. [3] Annual and quarterly data are on 50-State basis. [4] Annual rates seasonally adjusted fourth quarter. [5] Seasonally adjusted. [6] As of November 1, 1970. [7] As of March 1, 1970. [8] As of March 1, 1971.

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